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An

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(54) **TRAFFIC BARRIER STRUCTURE**

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(30) **Foreign Application Priority Data**

May 19, 2016 (KR) 10-2016-0061268

(51) **Int. Cl.**

E01F 15/04	(2006.01)
E01F 15/02	(2006.01)
E01F 15/14	(2006.01)

(52) **U.S. Cl.**

CPC ***E01F 15/04*** (2013.01); ***E01F 15/025*** (2013.01); ***E01F 15/0461*** (2013.01); ***E01F 15/146*** (2013.01)

(58) **Field of Classification Search**

CPC . E01F 15/00; E01F 15/02; E01F 15/04; E01F 15/0407; E01F 15/0423; E01F 15/0438

See application file for complete search history.

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(57) **ABSTRACT**

A traffic barrier structure includes posts fixedly installed at the median or roadside of the road, guiderail units composed of guiderails horizontally connected in series between the posts and each having a longitudinal slot, a rail holder installed in the guiderail and having a slot holder piece closely engaged against the slot in the guiderail and a deformation-resistant piece extending from the slot holder piece, closely conforming to a portion of an inner curved portion of the guiderail, to prevent deformation of the guiderails and enlargement of the slots when shock is applied the guiderails, and a rail connector inserted into respective connection part of adjacent guiderails to longitudinally connect the adjacent guiderails.

7 Claims, 14 Drawing Sheets
(2 of 14 Drawing Sheet(s) Filed in Color)

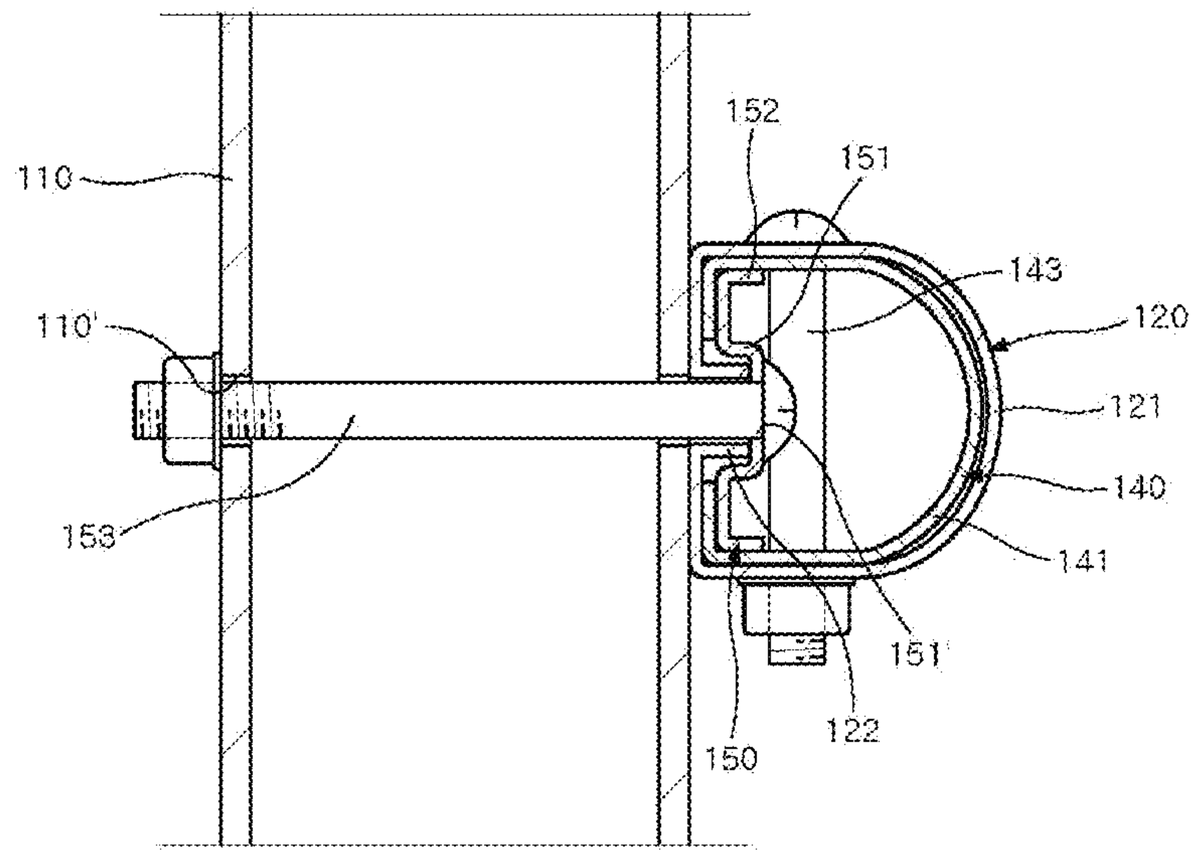
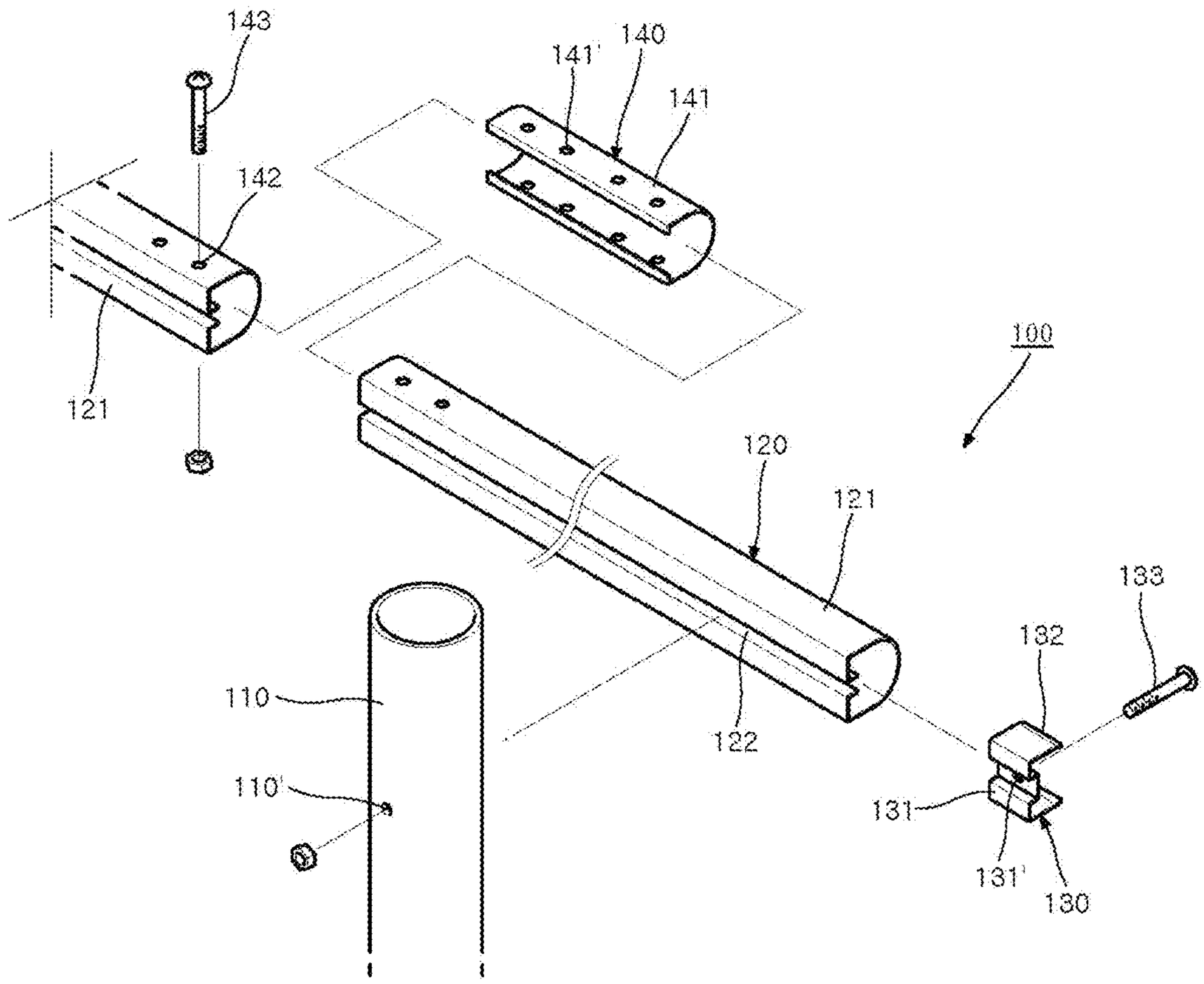


FIG. 1


143
141'
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121
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133
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110
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110'
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131'
130

FIG. 2

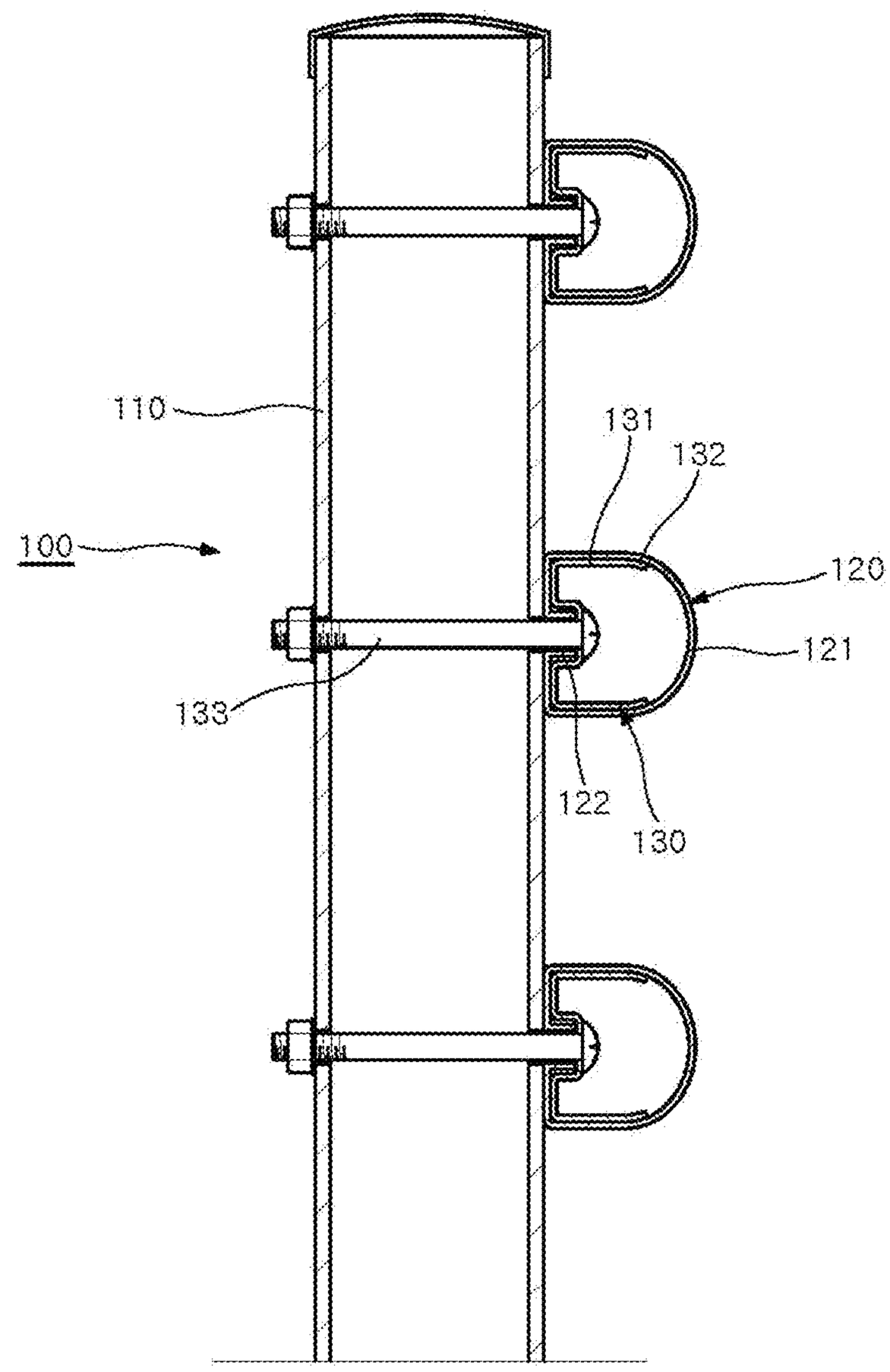


FIG. 3

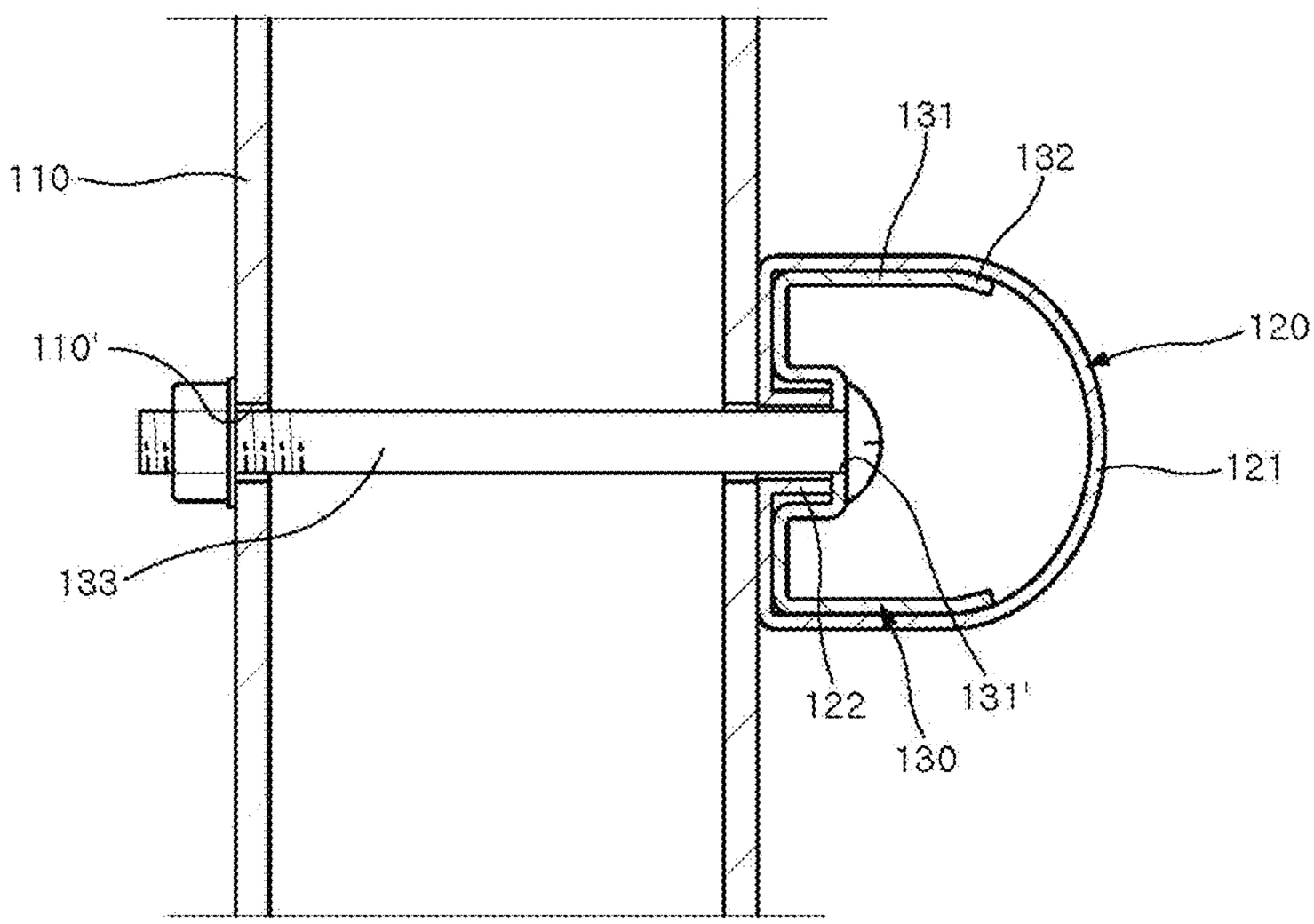


FIG. 4

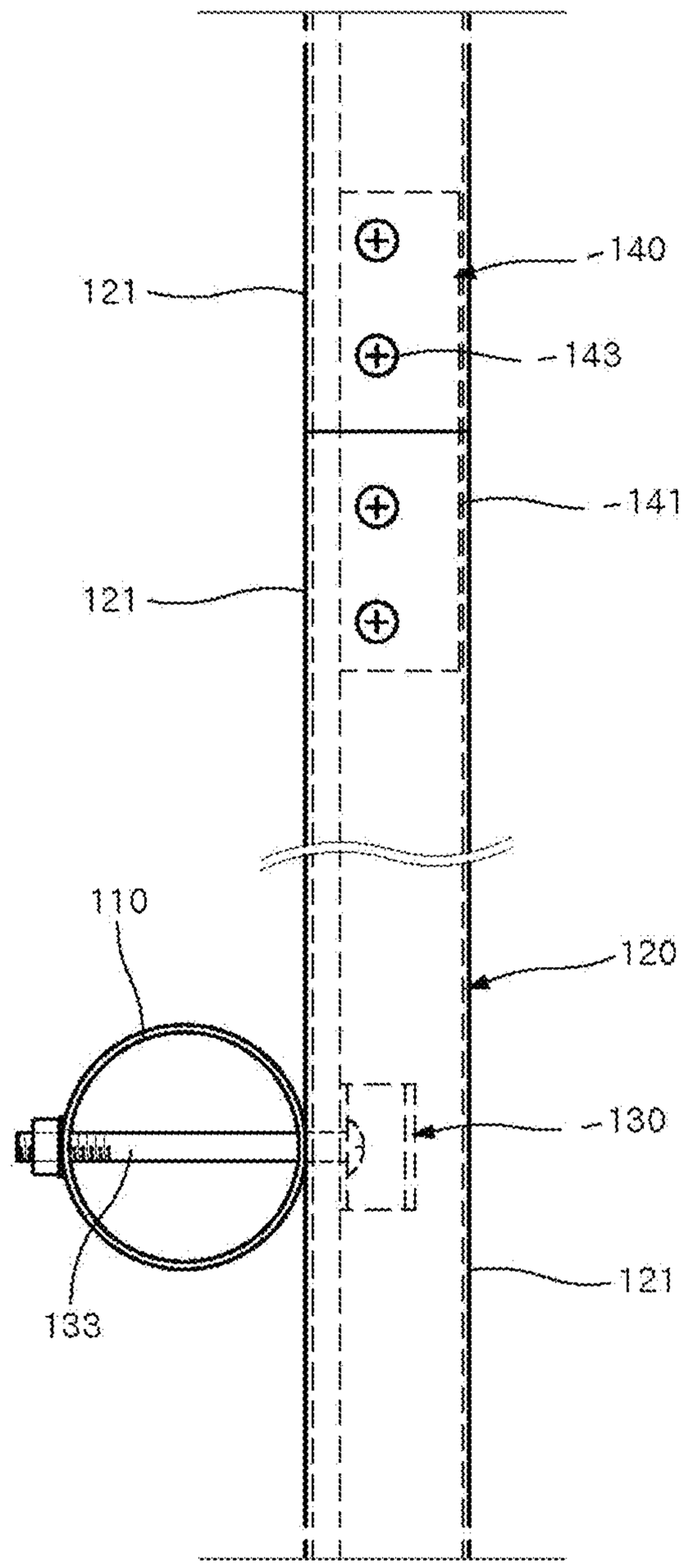


FIG. 5

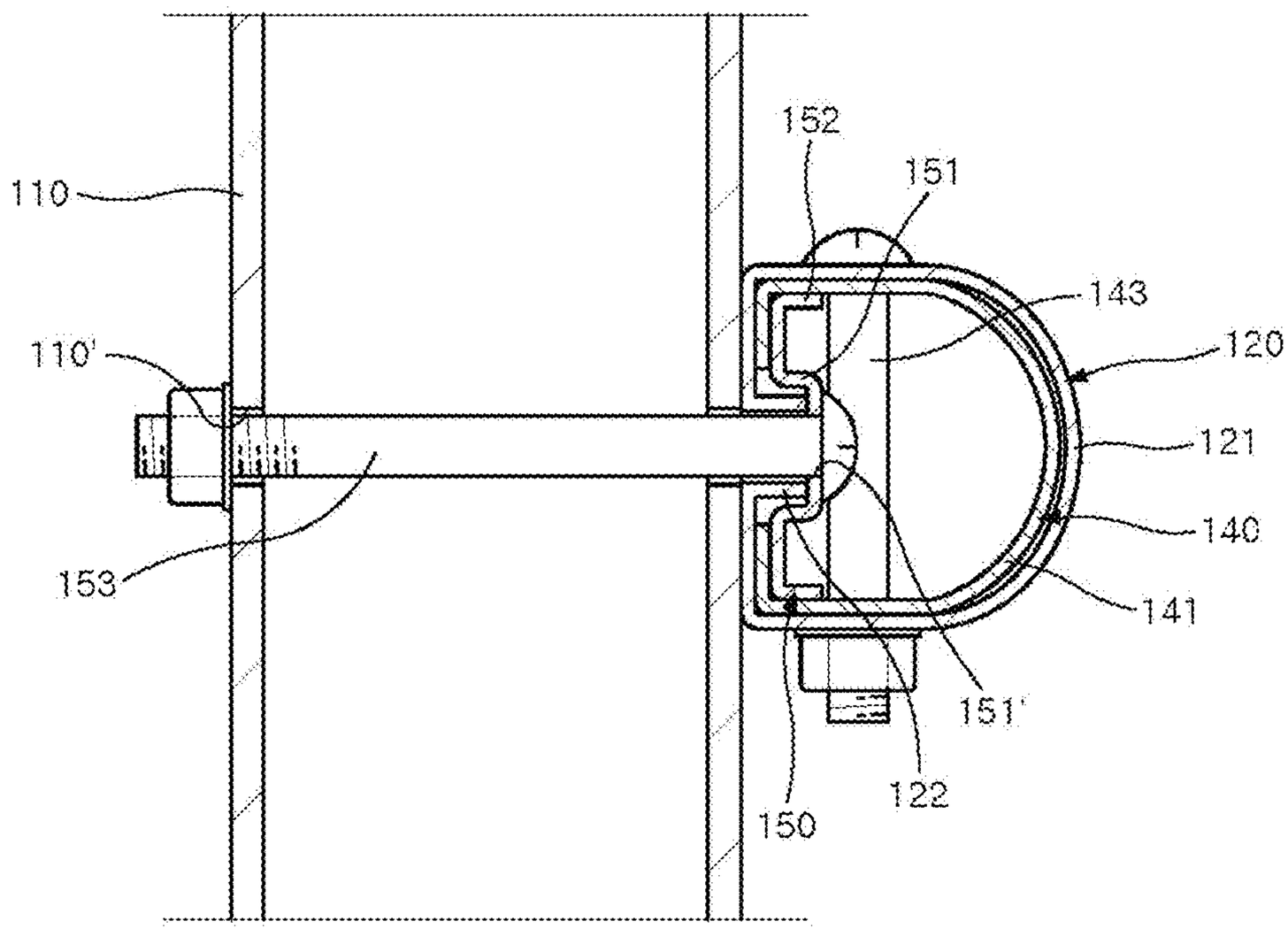


FIG. 6

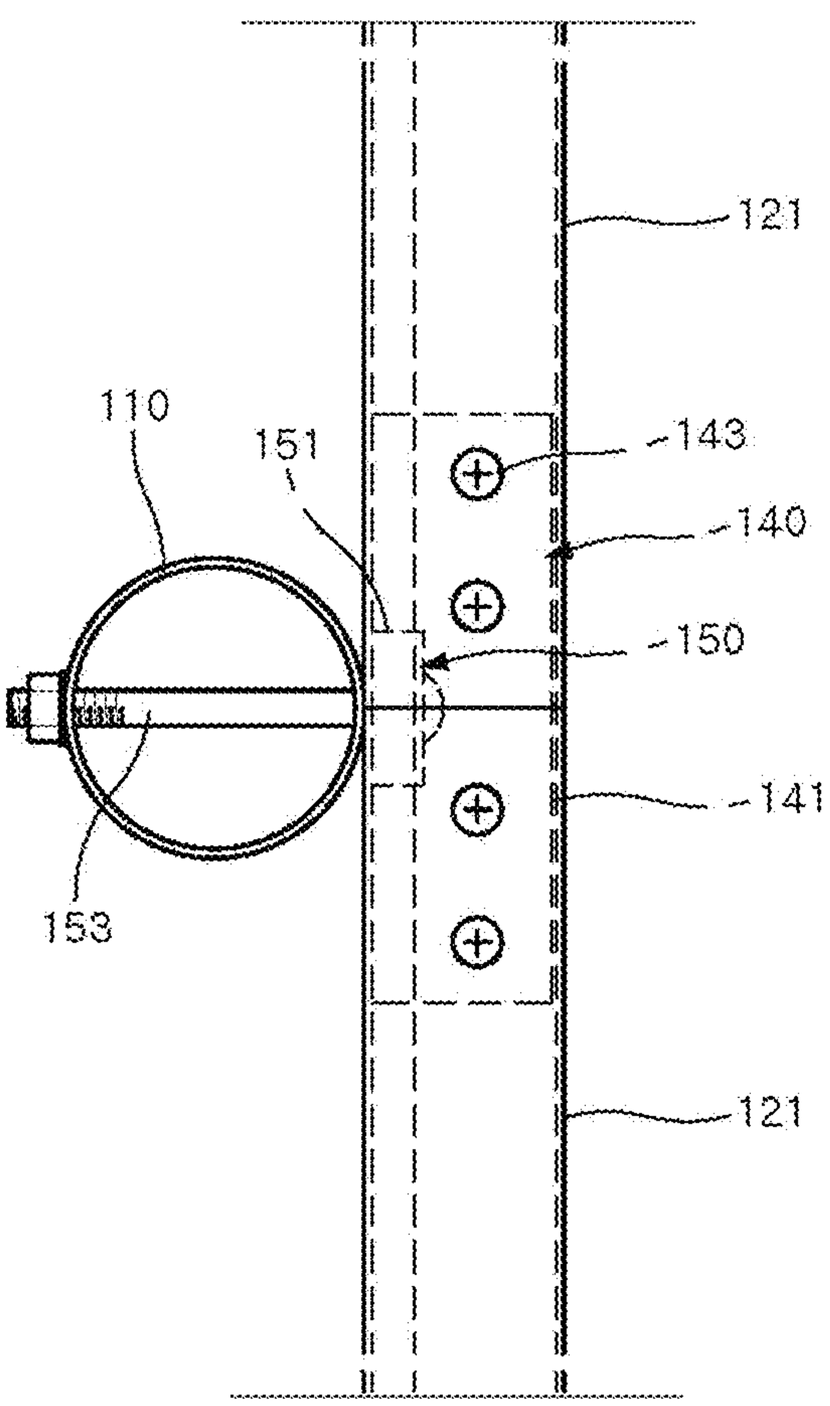


FIG. 7

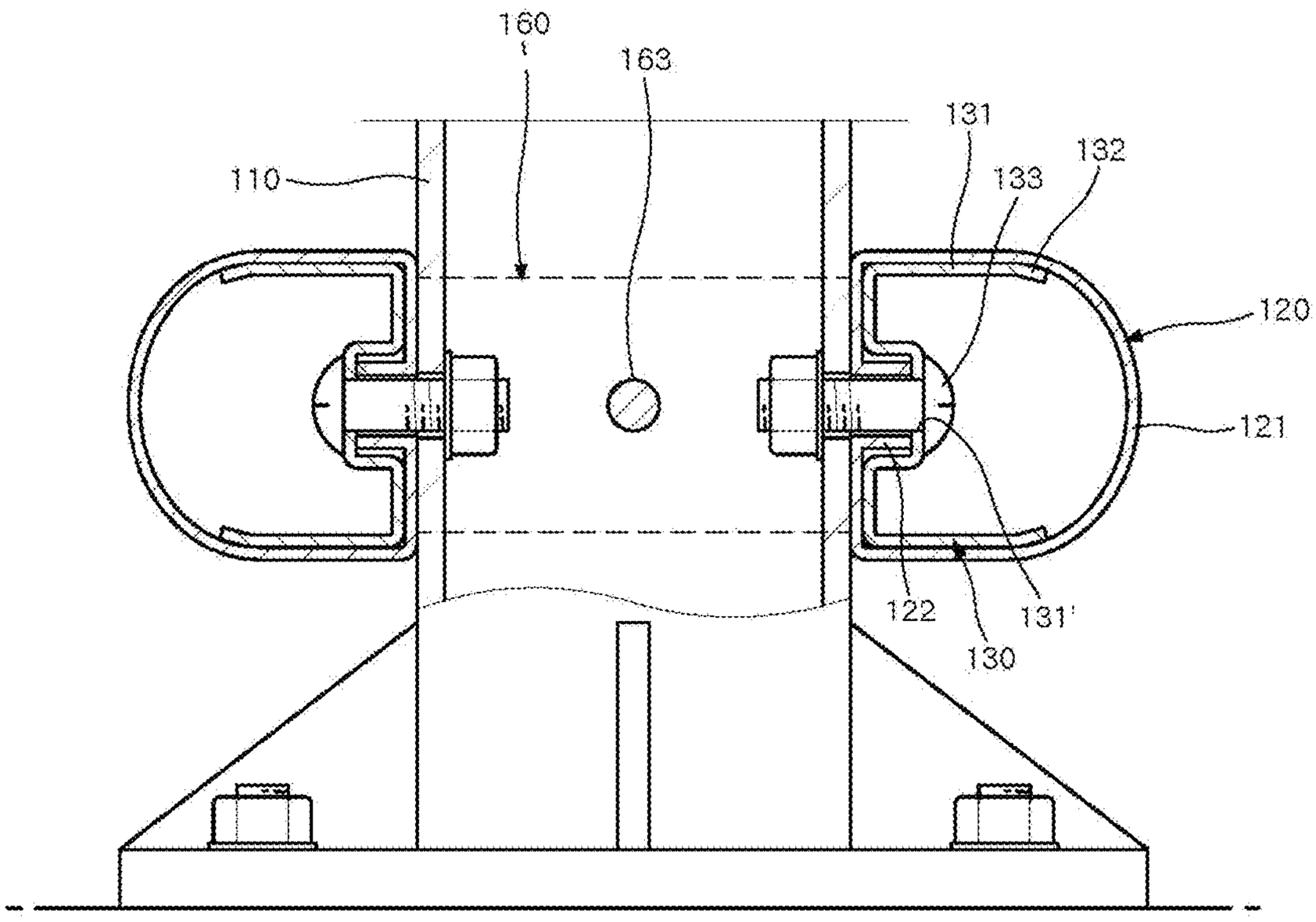


FIG. 8

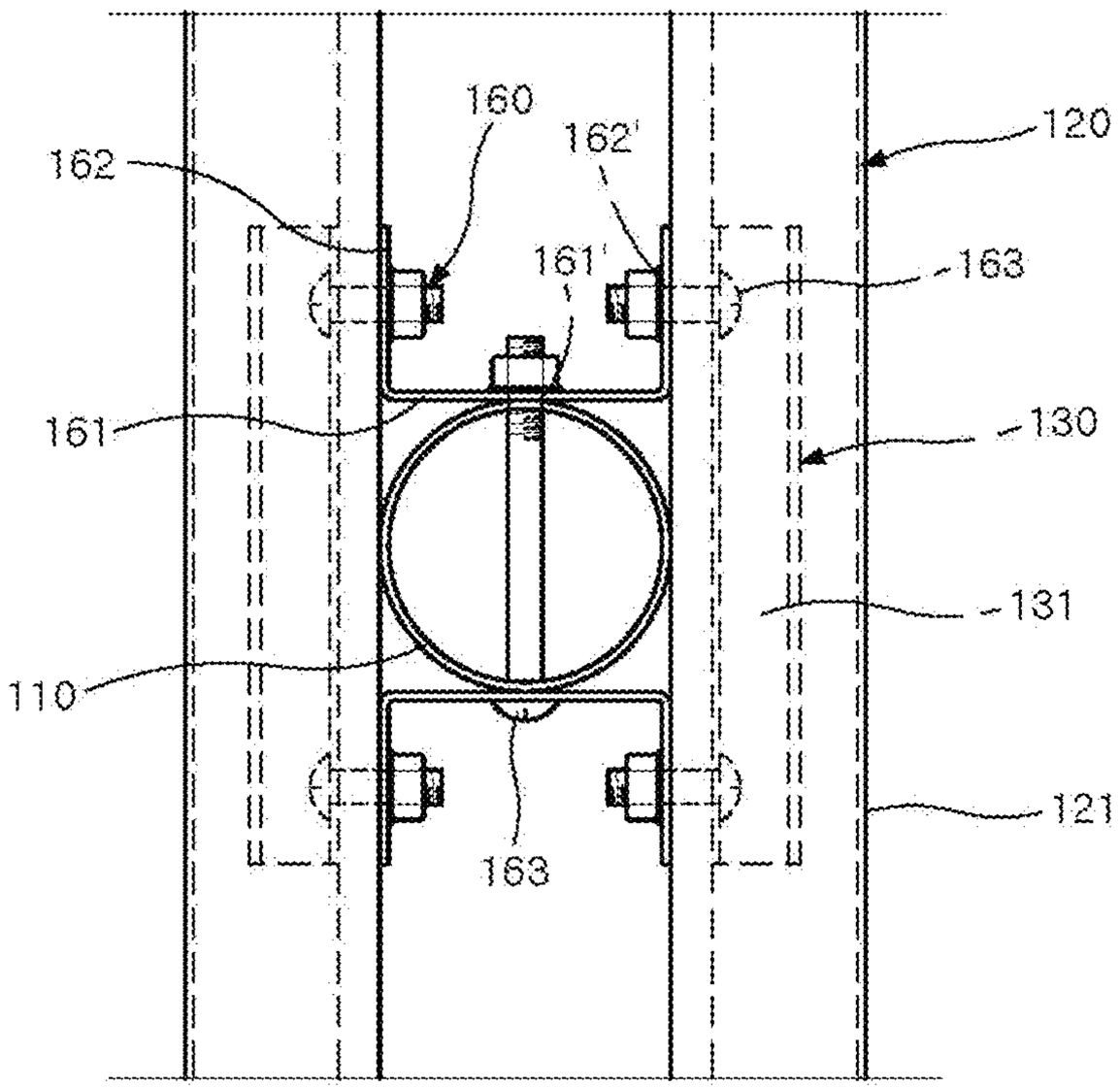


FIG. 9

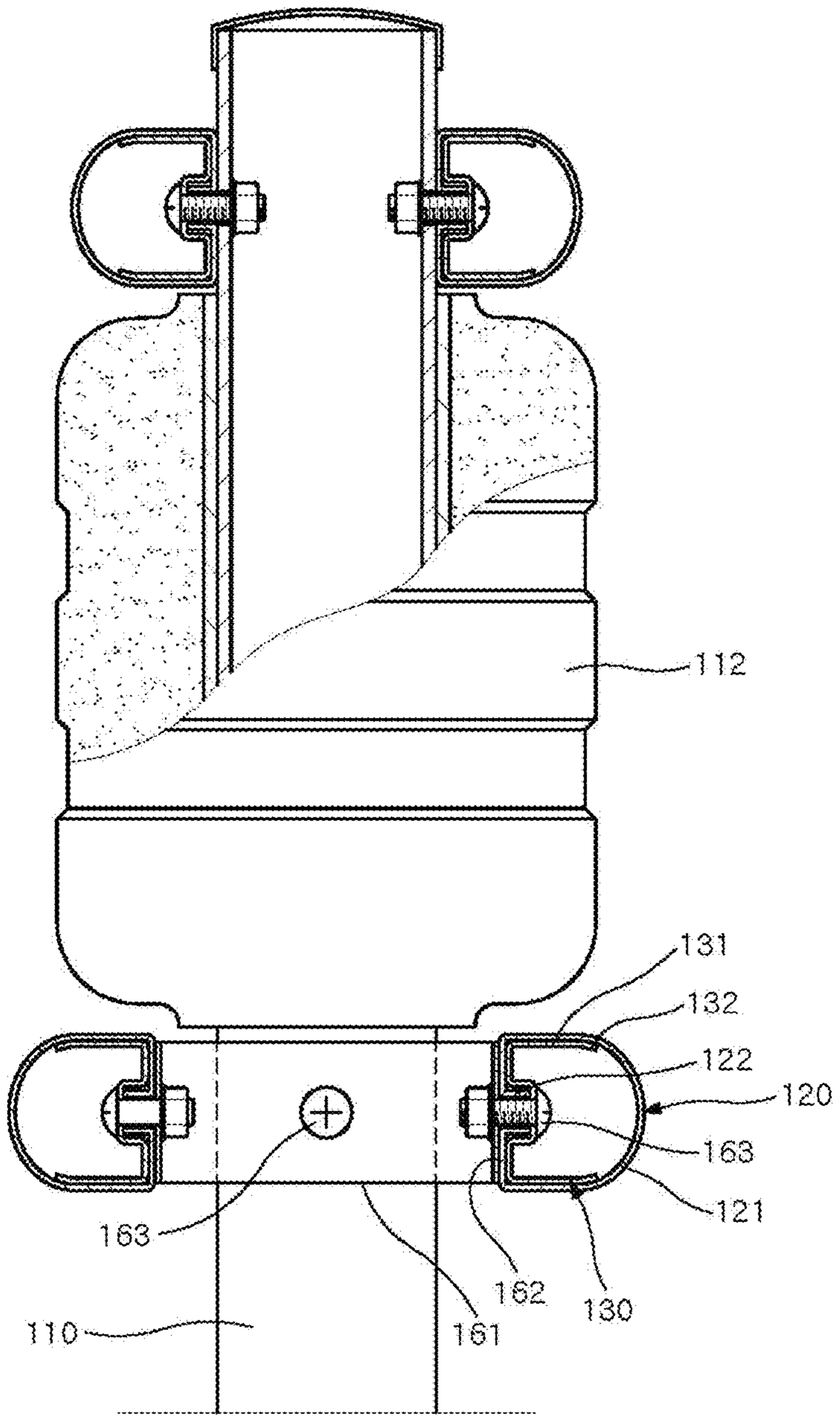


FIG. 10

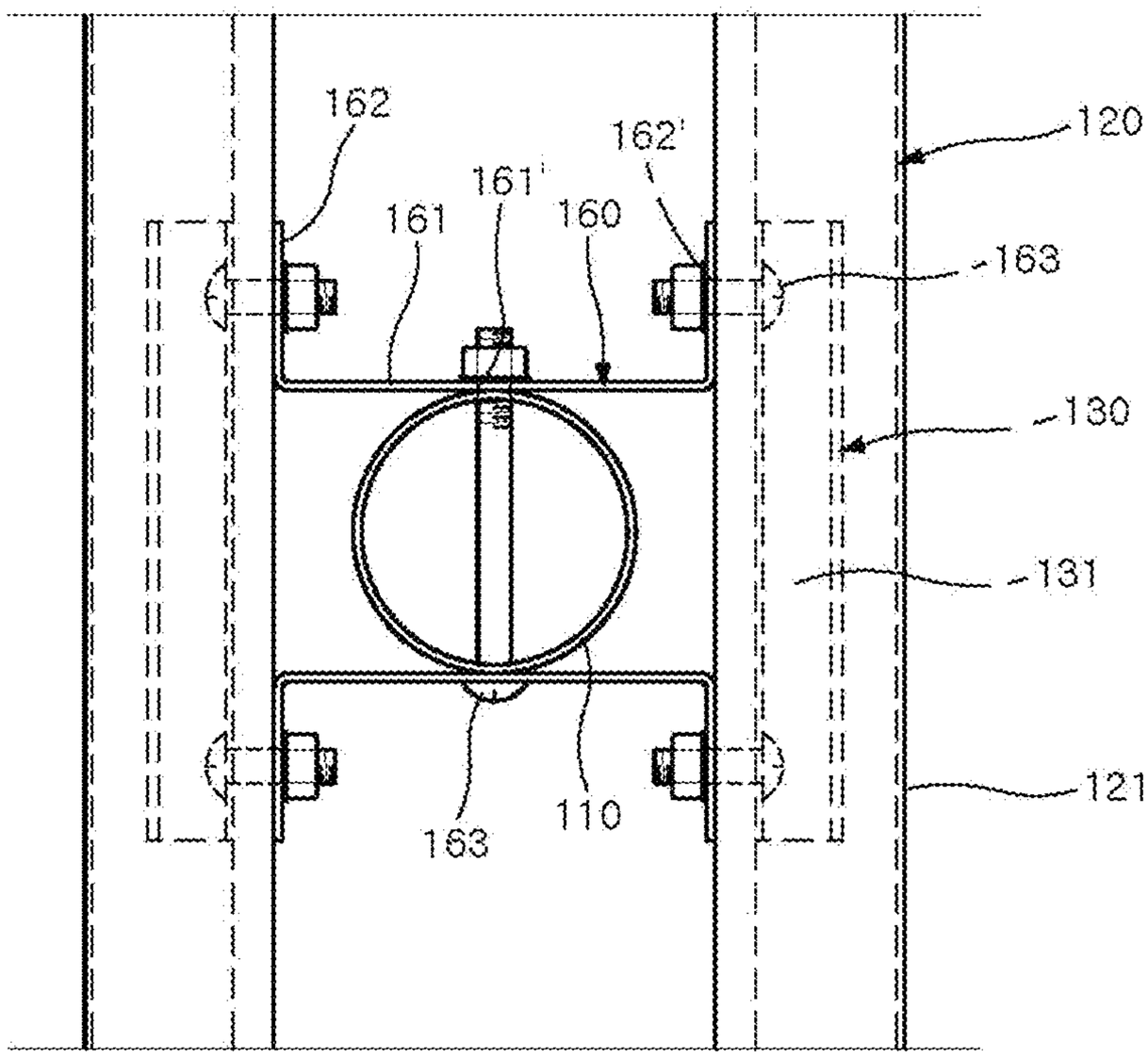


FIG. 11

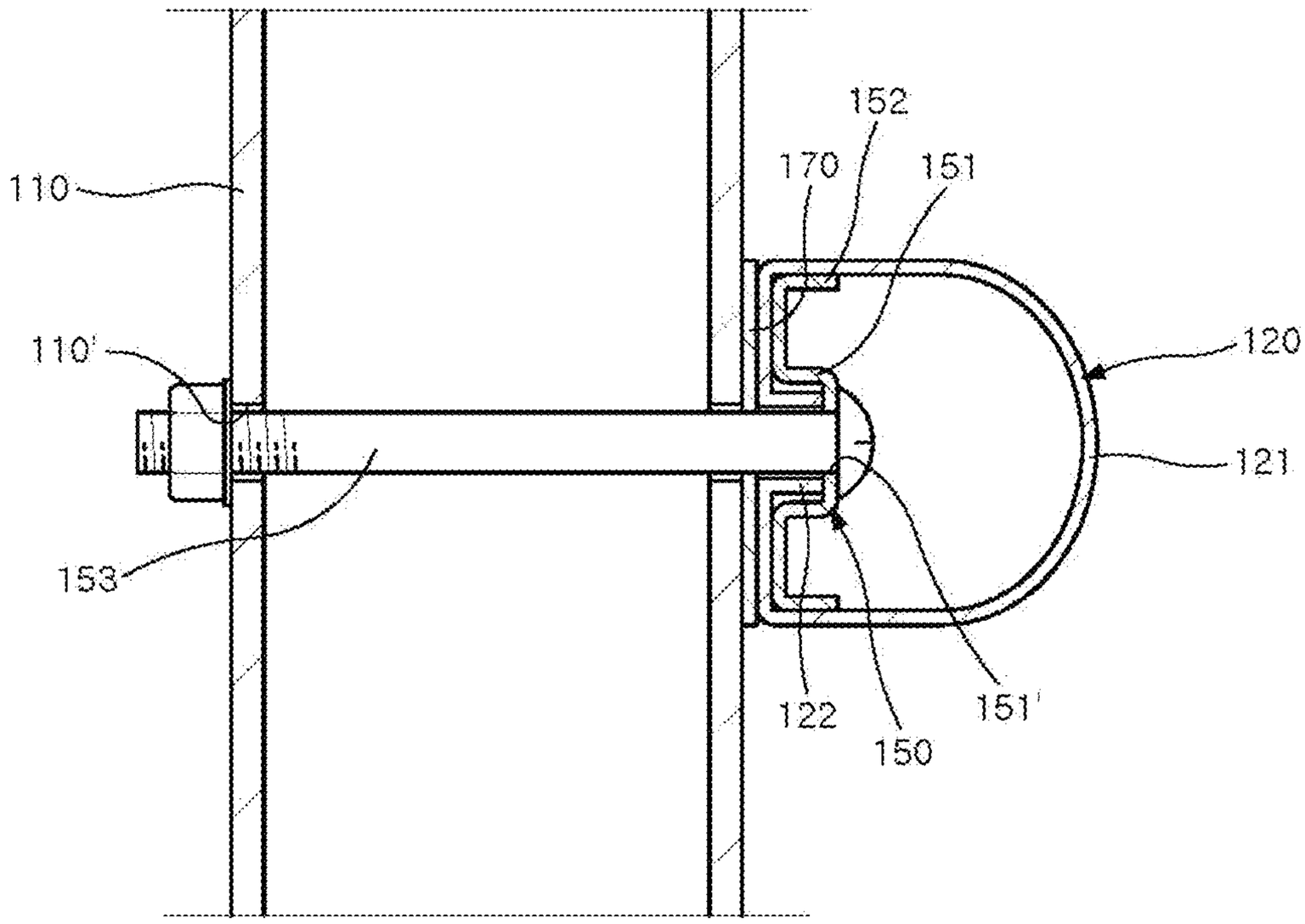


FIG. 12

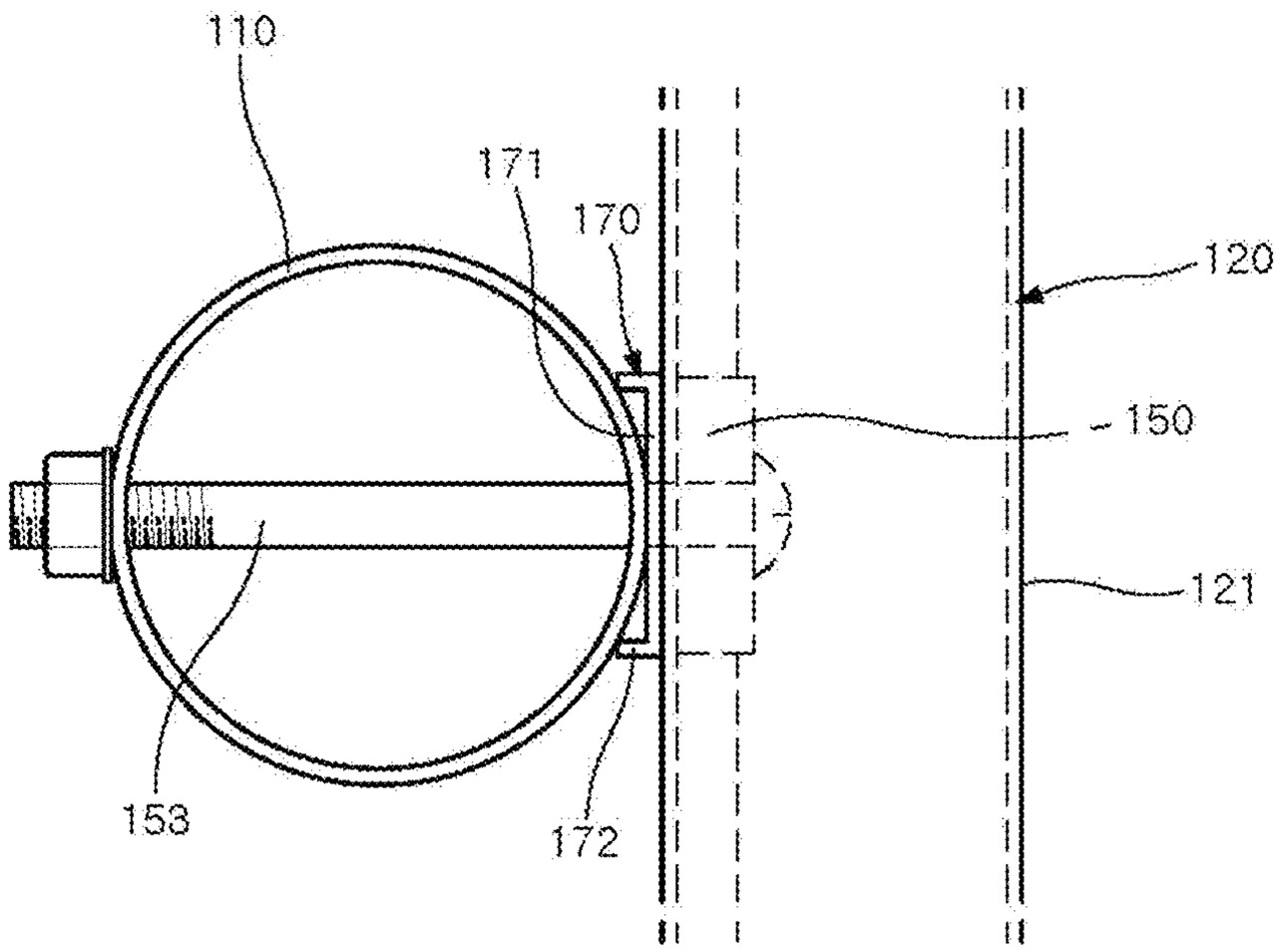
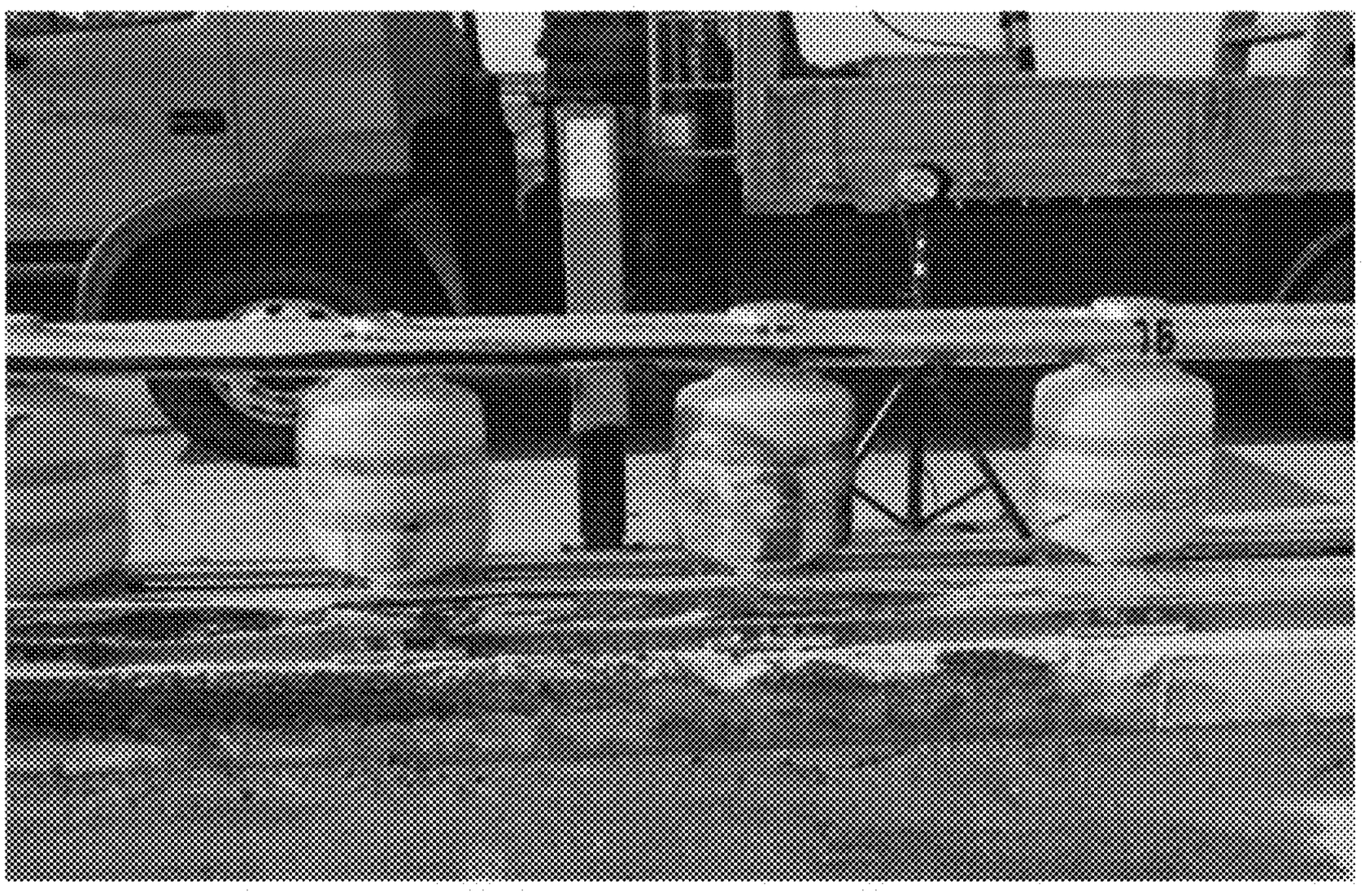
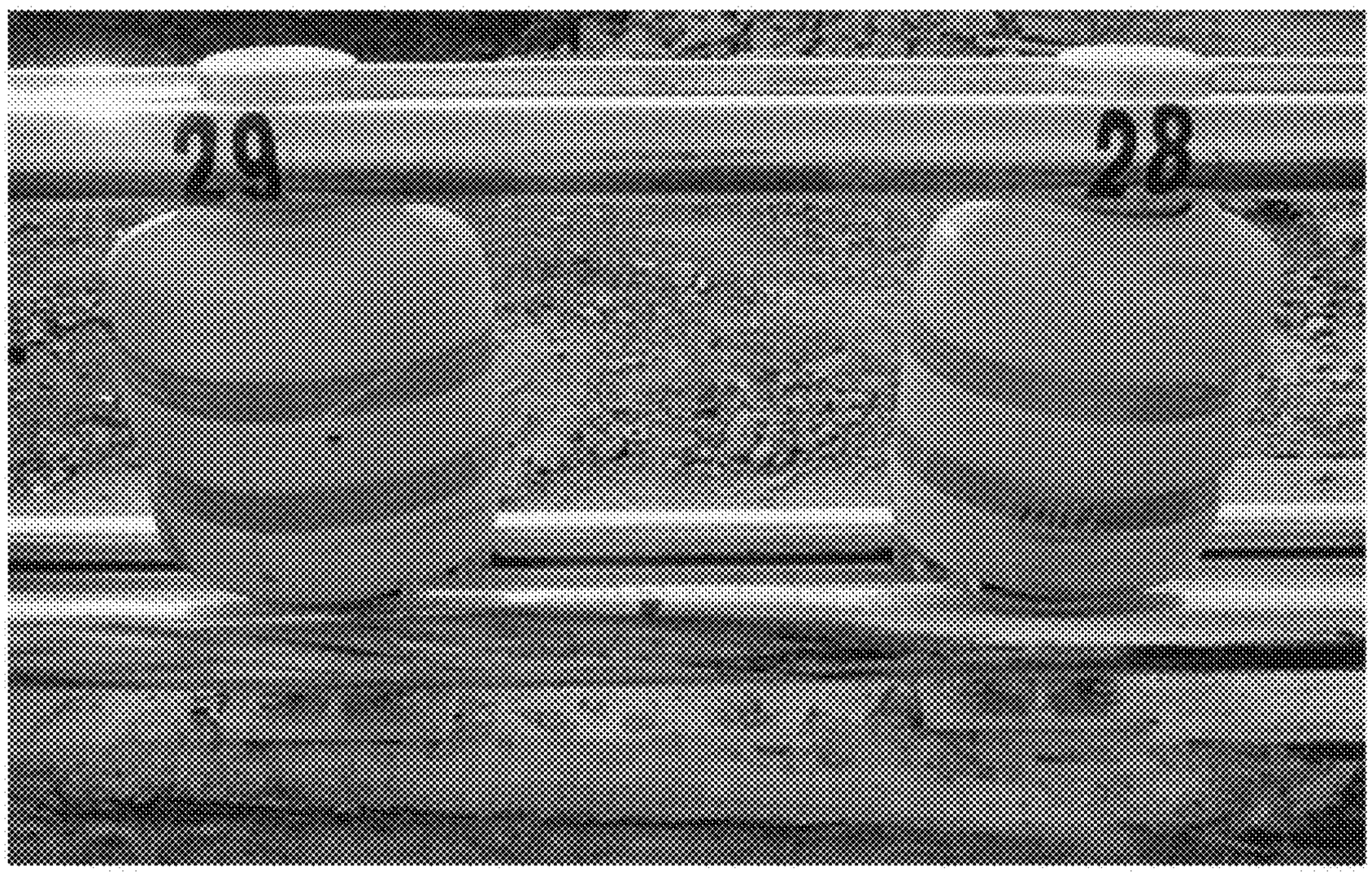


FIG. 13



[Test for Truck: Impacted Part after Test]

FIG. 14



[Test for Car: Impacted Part after Test]

TRAFFIC BARRIER STRUCTURE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to a traffic barrier structure. More particularly, the present invention relates to a traffic barrier structure, in which: extended ends of a rail holder are installed on a portion of an inner surface of a guiderail so as to minimize the deformation of the guiderail when impacted to prevent decoupling of the guiderail from a post and thus prevent the decoupling and scattering of nuts and bolts which may damage a vehicle or injure vehicle occupants; support units are installed on front and rear sides of the post so as to support the guiderail on the post more stably while increasing a contact area and fastening strength with respect to the guiderail; and a reinforcing section is fixed between the post and the guiderail to increase a contact area with the guiderails, thereby further increasing the fastening force with respect to the guiderails.

Description of the Related Art

Generally, on the road, a variety of safety structures are installed for protecting vehicles, drivers, and passengers. Among these safety structures, there are traffic barrier structures that are installed at the median or roadside of the road for the purposes of vehicle lane departure/fall prevention, pedestrian protection, etc.

Such traffic barrier structures may be classified into a fixed-type barrier structure and a buried-type barrier structure that are fixedly installed at or buried into the median or roadside of the road, respectively. As an exemplary fixed-type structure, there may be a structure using fixed concrete blocks. In such a traffic barrier structure, a series of blocks are arranged at the median or roadside of the road and fixedly connected thereto by a means of nuts and bolts.

However, such a fixed-type barrier structure merely serves to prevent errant vehicles from crossing into an opposing lane or falling off the roadside, but cannot absorb shock from vehicle collision.

Thus, there is a problem in that upon vehicle collision, collision shock is wholly transferred to the vehicle to injure vehicle occupants and damage the vehicle itself.

Further, as an exemplary buried-type barrier structure, there may be a structure in which a guiderail or a pair of opposed guiderails are mounted longitudinally between posts using nuts and bolts, and waste tires are fitted and stacked along the post to absorb shock occurring upon vehicle collision.

However, although the buried-type barrier structure has an advantage that shock occurring upon vehicle collision can be absorbed and dispersed to reduce the accident's effect and injury to vehicle occupants, it also has a problem in that upon collision a vehicle is not decelerated, but is temporarily accelerated by bouncing off the tires due to the stacked waste tires causing the vehicle to rotate, thus resulting in a secondary accident through lane departure to an adjoining lane whereby a secondary collision with other vehicles can occur.

Recently, to solve the above problem, proposed is a shock-absorbing traffic barrier structure disclosed in Korean Patent No. 10-1507481 owned by the Applicant.

The traffic barrier structure of the Patent document is configured such that a plurality of posts are fixedly installed, rail frames are connected between the posts, and fixing washers are installed in the rail frames using nuts and bolts to prevent deformation of the rail frames and enlargement of slots.

However, the above barrier structure has a problem in that curved portion of the rail frames are likely to be deformed by external impact occurring upon a vehicle collision, resulting in enlargement of slots in the rail frames, thus leading to decoupling and scattering of the nuts and bolts and causing damage to vehicles or injury to vehicle occupants.

DOCUMENTS OF RELATED ART

(Patent Document 1) Korean Patent No. 10-1507481 (2015.03.25)

SUMMARY OF THE INVENTION

Accordingly, the present invention has been made keeping in mind the above problems occurring in the related art, and an object of the present invention is to provide a traffic barrier structure, in which extended ends of a rail holder are installed on a portion of an inner surface of a guiderail so as to minimize the deformation of the guiderail when impacted to prevent decoupling of the guiderail from a post and thus prevent the decoupling and scattering of nuts and bolts to damage a vehicle or injure vehicle occupants.

Another object of the present invention is to provide a traffic barrier structure, in which support units are installed on front and rear sides of the post so as to support the guiderail on the post more stably while increasing a contact area and fastening strength with respect to the guiderail.

A further object of the present invention is to provide a traffic barrier structure, in which a reinforcing section is fixed between the post and the guiderail to increase a contact area with the guiderails, thereby further increasing the fastening force with respect to the guiderails.

In order to achieve the above object, according to one aspect of the present invention, there is provided a traffic barrier structure including: a plurality of posts fixedly installed at regular intervals along the median or roadside of the road; a plurality of guiderail units composed of a plurality of guiderails horizontally connected in series between the posts and each having a longitudinal slot; a rail holder installed in the guiderail of the guiderail unit and having a slot holder piece closely engaged against the periphery of the slot in the guiderail and a deformation-resistant piece extending as an end side from the slot holder piece, closely conforming to a portion of an inner curved portion of the guiderail, in order to prevent deformation of the guiderails and enlargement of the slots when shock is applied to the guiderails; and a rail connector inserted into respective connection part of adjacent guiderails of the guiderail unit to longitudinally connect the adjacent guiderails.

According to the present invention, extended ends of the rail holder are installed on a portion of the inner surface of the guiderail so as to minimize the deformation of the guiderail when impacted to prevent decoupling of the guiderail from the post and thus prevent the decoupling and scattering of nuts and bolts to damage a vehicle or injure vehicle occupants.

Further, according to the present invention, support units are installed on front and rear sides of the post so as to support the guiderail onto the post more stably while increasing a contact area and fastening strength with respect to the guiderail.

Further, according to the present invention, the reinforcing section is fixed between the post and the guiderail to increase a contact area with the guiderails, thereby further increasing the fastening force with respect to the guiderails.

BRIEF DESCRIPTION OF THE DRAWINGS

The file of this patent contains at least one drawing executed in color. Copies of this patent with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

The above and other objects, features and advantages of the present invention will be more clearly understood from the following detailed description when taken in conjunction with the accompanying drawings, in which:

FIG. **1** is an exploded perspective view of a traffic barrier structure according to an embodiment of the present invention;

FIG. **2** is a side cross-sectional view of the traffic barrier structure;

FIG. **3** is a partially-enlarged cross-sectional view of FIG. **2**;

FIG. **4** is a top view of the traffic barrier structure;

FIG. **5** is a side cross-sectional view showing an assembled state of a connection part of adjacent guiderails being aligned with a post according to an embodiment of the present invention;

FIG. **6** is a top view showing an assembled state of a connection part of adjacent guiderails being aligned with a post according to an embodiment of the present invention;

FIG. **7** is a side cross-sectional view showing the state in which guiderails are installed on opposite sides of the post and the support unit is fixed therebetween;

FIG. **8** is a top view showing the state in which the support unit is fixed to the post and the guiderails;

FIG. **9** is a side cross-sectional view the state in which the guiderails are installed in a manner spaced from the post;

FIG. **10** is a top view showing the state in which the guiderails are installed in a manner spaced from the post;

FIG. **11** is a side cross-sectional view showing the state in which the reinforcing section is fixed between the post and the guiderail;

FIG. **12** is a top view showing the state in which the reinforcing section is fixed between the post and the guiderail;

FIG. **13** is a photograph of a collision test for evaluation of strength performance; and

FIG. **14** is a photograph of a collision test for evaluation of occupant protection performance.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in greater detail to a preferred embodiment of the invention, an example of which is illustrated in the accompanying drawings. It should be understood that the present invention may be implemented into diverse other forms, and is not limited to the disclosed embodiments.

A traffic barrier structure **100** according to the present invention includes: a plurality of posts **110** fixedly installed at regular intervals along the median or roadside of the road; a plurality of guiderail units **120** composed of a plurality of guiderails **121** horizontally connected in series between the posts **110** and each having a longitudinal slot **122**; a rail holder **130** installed in the guiderail **121** of the guiderail unit **120** and having a slot holder piece **131** closely engaged against the periphery of the slot **122** in the guiderail **121** and a deformation-resistant piece **132** extending as an end side from the slot holder piece **131**, closely conforming to a portion of an inner curved portion of the guiderail **121**, in order to prevent deformation of the guiderails **121** and enlargement of the slots **122** when the guiderails **121** are applied with shock; and a rail connector **140** inserted into respective connection part of adjacent guiderails **121** of the guiderail unit **120** to longitudinally connect the adjacent guiderails **121**. A more specific description thereof is as follows.

The rail holder **130** includes the slot holder piece **131** that is closely curved along the slot **122** of the guiderail **121** and extends to upper and lower horizontal portions of the guiderail **121** inside the guiderail, the deformation-resistant piece **132** bent and extending as an end side from the upper and lower horizontal portions of the guiderail **121** to closely conform to a portion of the inner curved portions of the guiderail **121**, and a fastening member **133** fastening the guiderail **121** to the post **110** through a bolt hole **131'** formed in the slot holder piece **131**.

The rail connector **140** has a connection insert **141** inserted into the connection part of adjacent guiderails **121**, the connection insert having through-holes **141'**, connection holes **142** formed in the connection part of the adjacent guiderails **121**, and connection members **143** fitted through the connection holes **142** and the through-holes **141'** of the connection insert **141** so as to longitudinally connect the adjacent guiderails **121**.

When the connection part of the adjacent guiderails **121** of the guiderail units **120** is positioned at the post **110**, the rail connector **140** is inserted into the connection part of the adjacent guiderails **121** to longitudinally connect the guiderails. Here, a holder unit **150** is further provided in the rail connector **140** so as to be fastened to the post **110**, in order to prevent deformation of the guiderails **120** and enlargement of the slots **122** in the case of a collision.

The holder unit **150** has a washer-type body and a fastening member **153** fastening the guiderails **121** to the post **110** through the washer-type body. The washer-type body consists of a slot holder piece **151** closely curved along the slot **122** of the guiderails **121** in the connection insert and a deformation-resistant piece **152** bent perpendicular to an end of the slot holder piece **151** to closely conform to an inner portion of the rail connector **140**. The fastening member **153** fastens the guiderails to the post **110** through a bolt-hole **151** formed in the slot holder piece **151**.

The guiderail **121** is installed on either one side or both sides of the post **110**. When the guiderail **121** is installed on both sides of the post **110**, a support unit **160** is further provided on front and rear sides of the post **110** in order to support the opposed guiderails **121** while increasing a contact area with the guiderails **121** to reinforce the fastening strength with respect to the guiderails.

The support unit **160** has a support body part **161** closely abutted on the post, support plates **162** bent from both sides of the support body part **161** so as to be brought into close contact with the guiderails **121**, and a fastening member **163** fastening the support body part **161** and the support plates **162** to the post **110** and the guiderails **121**, respectively.

The support body part **161** may be further extended to a distance to allow the guiderails **121** to be spaced by the distance from the post **110** so as to absorb shock applied therebetween.

A reinforcing section **170** is further provided between the post **110** and the guiderail unit **120** to increase a contact area and fastening force with respect to the guiderail unit **120**.

The reinforcing section **170** has a reinforcing plate part **171** to be closely abutted against an inner side of the guiderail **121**, the reinforcing plate part having a through-hole, and bent pieces **172** bent from both ends of the reinforcing plate parts **171** towards the post **110** so as to be closely abutted against an outer surface of the post **110**.

An installation procedure of the traffic barrier structure according to the present invention will be described in detail.

First, as illustrated in FIGS. **1** to **4**, a plurality of posts **110** are installed at regular intervals along the median or roadside of the road.

The guiderail unit **120** is installed on the post **110**. Here, the rail holder **130** is first provided in the guiderail **121** of the guiderail unit **120**.

The guiderail unit **120** includes the guiderail **121** having a certain length, and the slot **122** longitudinally formed along the guiderail **121**.

The guiderail **121** has a cross section of 'D', which has an outer curved portion serves to disperse external shock, and an inner flat portion along which the slot **122** is formed.

To install the rail holder **130** into the guiderail **121**, the rail holder should be installed in a state of a bolt type element of the fastening member **133** being threaded through a bolt-hole **131'** of the slot holder piece **131**.

The slot holder piece **131** of the rail holder **130** is brought into close contact with the inner surface of the guiderail **121** while covering the slot **122** of the guiderail **121**.

Since the slot holder piece **131** extends to upper and lower horizontal portions of the guiderail **121**, enlargement of the slot is prevented upon a vehicle collision. Further, since the deformation-resistance piece **132** is formed in a bent form from opposite ends of the slot holder piece **131** so as to closely abut against the inner curved portion of the guiderail **121**, the deformation of the curved portion of the guiderail **121** is minimized upon a vehicle collision.

While the rail holder **130** has been described as being fixed to the post **110** using the fastening member **133**, the rail holder **130** may be fixed by means of nuts and bolts to be fastened vertically from the guiderail **121**.

After the rail holder **130** is installed in the guiderail **121**, the guiderail **121** is horizontally fixed to the post **110** by positioning the guiderail **121** at a certain height on one side of the post **110**, threading the bolt-type element of the fastening member **133**, installed through the rail holder **130**, through the fastening hole **110'** of the post **110**, and then screwing a nut onto the bolt-type element of the fastening member **133**.

Further, another guiderail **121** is installed to another post **110** in the same manner.

At a connection part between adjacent guiderails **121**, the rail insert **141** of the rail connector **140** is inserted so that connection members **143** having nuts and bolts are fastened through the connection holes **142** formed in the connection part of the guiderails **121** and the through-holes **141'** of the connection insert **141**, thereby continuously connecting the adjacent guiderails **121** longitudinally.

Another embodiment of the present invention will now be described in detail.

First, as illustrated in FIGS. **5** and **6**, the guiderails **121** are continuously installed to the posts **110** in such a manner that, when the connection part between adjacent guiderails **121** is aligned with the post **110**, at the connection part between adjacent guiderails **121**, the rail insert **141** of the rail connector **140** is inserted so that connection members **143** having nuts and bolts are fastened through the connection holes **142** formed in the connection part of the guiderails **121** and the through-holes **141'** of the connection insert **141**, thereby continuously connecting the adjacent guiderails **121** longitudinally.

Further, the holder unit **150** is coupled in the connection insert **141** so as to fasten the guiderail **121** to the post **110** such that the bolt-type element of the fastening member **153** having nuts and bolts is threaded through the bolt-hole **151'** of the slot holder piece **151**.

When the slot holder piece **151** fastened with the fastening member **153** is coupled to conform to the slot **122** of the guiderail **121**, the deformation-resistant pieces bent from opposite ends of the slot holder piece **151** are closely abutted against the inner surface of the connection insert **141**.

After the rail connector **140** and the holder unit **150** are then installed in the guiderail **121**, the guiderails **121** are horizontally fixed by positioning the guiderails **121** at a certain height on one side of the post **110**, threading the bolt-type element of the fastening member **153** through the fastening hole **110'** of the post **110**, and then screwing a nut onto the bolt-type element of the fastening member **153**.

Thus, since the guiderails **121** are fixed to the post **110** after the rail connector **140** and the holder unit **150** are installed in the connection part of the adjacent guiderails **121**, the deformation of the guiderail and the enlargement of the slot **122** can be minimized.

Further, as illustrated in FIGS. **7** and **8**, the guiderail **121** may be installed on either one side of both sides of the post **110**. When the guiderail **121** is installed on both sides of the post **110**, the support unit **160** formed like a '⊏'-type shape is provided on the front and rear sides of the post **110** with support body part **161** of the support unit **160** closely abutted on the outer surface of the post **110** and the support plates **162** bent from both ends of the support body part **161** closely abutted on the guiderail **121**.

Here, a fastening hole **161'** of the support body part **161** needs to be positioned in line with the through-hole **110'** of the post **110**, and a fastening hole **162'** of the support plate **162** needs to be positioned in line with the slot **122** of the guiderail **121**.

In this state, the bolt-type element of the fastening member **163** is threaded out of the support body part **161** through the fastening hole **161'** of the support body part **161** and through the fastening hole **110'** of the post **110**, and then is fastened by a nut.

Further, the bolt-type element of the fastening member **163** is threaded out of the support plate **162** from the bolt-hole **131'** of the rail holder **130** through the fastening hole **162'** of the support plate **162**, and then is fastened by a nut.

Here, since the support unit **160** is fastened to the post **110** and the guiderails **121** with sufficient fastening force, the rail holder **130** may be preferably be fixed to the post, but it is possible to fasten the post **110** and the rail holder **130** using the fastening member **133**.

Thus, when the support unit **160** is fixed to the post **110** and the guiderails **121**, the contact area with the guiderails connected by the rail connector **140** and thus the fastening strength therewith are further increased, thereby providing a stable support function.

The post **110** may be installed at the ground as an anchor, or otherwise may be buried and installed in the ground.

As illustrated in FIGS. **9** and **10**, the support unit **160** allows the guiderails **121**, which are to be installed on both sides of the post **110**, to be spaced apart a distance from the post **110**. A shock-absorbing part **112** made from EVA or soft polyurethane may be rotatably installed on the post **110**.

When the support body part **161** of the support unit **160** is closely abutted on the front and rear sides of the post **110**, the support plates **162** bent from the opposite ends of the support body part **161** are positioned beyond the outer

surface of the post **110**, and then the support body part **161** is fastened to the post **110** by the fastening member **163**.

The support unit **160** and the guiderails **121** are fixed together by positioning the support plates **162** of the support unit adjacent to the guiderails **121**, aligning the slots **122** of the guiderails **121** with the fastening holes **162'** of the support plates **162**, and fastening the fastening member **163** through the slot **122** and the fastening hole **162'**.

When the guiderails **121** are fixed to the support unit **160**, the guiderails **121** are fixed with a certain distance spaced apart from the post **110**. This serves to further absorb shock by the spaced distance between the post **110** and the guiderails **121**.

Further, as illustrated in FIGS. **11** and **12**, the reinforcing section **170** formed like a '⊏'-type shape is installed between the post **110** and the guiderail **121** to increase the contact area with the guiderail **121** and thus fastening strength with respect to the post **110**.

First, the holder unit **150** is coupled into the guiderail so that the bolt-type element of the fastening member **153** is threaded through the bolt-hole **151'** of the slot holder piece **151**.

When the slot holder piece **151** fastened with the fastening member **153** is installed to enclose the slot **122** of the guiderail **121**, the deformation-resistant pieces **152** bent from the opposite ends of the slot holder piece **151** are closely abutted on the inner surface of the guiderail **121**.

When the holder unit **150** is installed on the guiderail **121**, the '⊏'-type reinforcing section **170** is positioned between the post **110** and the guiderail **121** with the guiderail **121** positioned at a certain height on one side of the post **110**.

In this state, the bolt-type element fastened to the holder unit **150** is threaded through the through-hole of the reinforcing section **170** and the fastening hole **110'** of the post **110**, and a nut is fastened to the bolt-type element from the outside of the post **110**, thereby horizontally fastening the guiderail **121**.

When the reinforcing section **170** is fastened between the post **110** and the guiderail unit **120**, the reinforcing plate part **171** of the reinforcing section **170** is closely abutted on the inner surface of the guiderail **121** to increase the contact area and thus the fastening strength, and the bent pieces **172** bent from the opposite ends of the reinforcing plate piece **171** are closely abutted on the outer surface of the post **110** to prevent the rotation on the outer surface of the post **110** during installation of the guiderail **121**, thereby facilitating the installation.

While it has been illustrated that the holder unit **170** is installed on the inner side of the guiderail **121** when the reinforcing section **170** is fixed between the post **110** and the guiderail unit **120**, the rail holder **130** may also be installed in the same manner.

TABLE 1

Collision Test Condition for Evaluation of Strength Performance	
Vehicle Weight (kg)	14,030 (14,000, ±5%)
Collision Velocity (km/h)	65.3 (65, 0~7%)
Collision Angle (Degrees)	15 (15 ± 1.5)
Degree of Collision (kJ)	154.6 (160)
Length	56 m
Installation Method	Manual (Bolting)
Collision Test Condition for Occupant Protection Performance	
Vehicle Weight (kg)	1,340 (1,300, ±5%)
Collision Velocity (km/h)	80.7 (80, 0~7%)
Collision Angle (Degrees)	20 (20 ± 1.5)

Table 1 shows collision test conditions for evaluating strength performance and occupant protection performance of the traffic barrier structure **100** having the above-mentioned construction upon a collision with a truck and a car.

TABLE 2

Measuring Items	Reference	Results
Collision Test Results for Evaluation of Strength performance		
Strength	Maintain strength *Truck-blocking Strength	Maintain Truck-blocking Strength
Deformation	Maximum Deformation Distance: 0.3 m or less	Maximum Collision Deformation Distance: 0.10 m
Dispersion	Not dispersed on or out of the road so as not to injury occupants or a third party	Not dispersed
Vehicle state after collision	No overturn or sudden stopping	Overturn and sudden stopping do not occur
	The center of vehicle mass does not pass the central line of the traffic barrier structure	The center of vehicle mass does not pass the central line of the traffic barrier structure
Collision Test Results for Evaluation of Occupant Protection Performance		
Occupant Protection	THIV: 33 km/h or less	THIV: 32 km/h
	PHD: 20 g or less	PHD: 5 g
	Not dispersed on or out of the road so as not to injure occupants or a third party	Not dispersed
	Deformation of internal space of a vehicle	Deformation of internal space of a vehicle
	Roof: 100 mm or less, Front side: 75 mm or less, Front Door: 230 mm or less, Collision-side Window: Not broken	Roof: 3 mm, Front windshield 2 mm, Front Door: 7 mm, Collision-side Window: Not broken
Vehicle state after collision	Roll, Pitch 75 degrees or less	Roll: 10.52, Pitch: 4.05 degrees

As a result of collision test under the condition of Table 1, as shown in Table 2 and FIGS. **13** and **14**, the traffic barrier structure **100** showed that a truck-blocking strength is maintained, the stability of a structural member is maintained without breakage of a connector, the maximum collision deformation distance shows an excellent result of 0.10 m that is much smaller than the reference of 0.3 m or less, components are not dispersed during vehicle collision, an overturn of a vehicle is not generated after a vehicle collision, and sudden stopping does not occur after the vehicle collision.

Further, the occupant protection performance showed that the occupant collision velocity (THIV) of 32 km/h satisfies the reference of 33 km/h or less, the occupant acceleration (PHD) of 5 g greatly exceeds the reference of 20 g or less, the degree of deformation in the internal space of a vehicle (that is, roof: 3 mm, front windshield: 2 mm, front door: 7 mm, and Collision-side window: not broken) sufficiently satisfies the reference (that is, roof: 100 mm or less, front side: 75 mm or less, front door: 230 mm or less, collision-side window: not broken).

The terminology used herein should not be interpreted as being limited to common or dictionary definition, but should be interpreted as meanings and concepts conforming to the technical scope of the invention. Although a preferred embodiment of the present invention has been described for

illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

What is claimed is:

1. A traffic barrier structure comprising:

a plurality of posts fixedly installed at regular intervals along a median or roadside of a road;

a plurality of guiderail units installed horizontally along the posts, each of the guiderail units including a plurality of longitudinally-aligned guiderails, each guiderail having a hollow cross-section, comprising a curved impact portion facing away from the posts, opposing upper and lower sidewalls, a flat abutment face facing the posts, and a longitudinal slot extending through the abutment face into an interior of the guiderail between opposing inwardly-bent slot sidewalls and longitudinally extending between opposing end portions of the guiderail, each guiderail including a connection part formed at each end portion thereof;

a rail connector inserted into the connection parts of two neighboring guiderails to horizontally connect the two neighboring guiderails in series, the rail connector having a hollow cross-section closely conforming to the inner surfaces of the guiderails, comprising a curved portion facing away from the posts, opposing upper and lower sidewalls, a flat abutment face facing the posts, and a longitudinal slot extending through the abutment face into an interior of the rail connector and longitudinally extending between opposing end portions of the rail connector, the inwardly-bent slot sidewalls of the neighboring guiderails extending through the slot of the rail connector into the interior of the rail connector; and

a holder unit disposed within the interior of the rail connector to be fastened to one of the posts, the holder unit comprising:

a washer-shaped slot holder piece having opposing outwardly-bent sidewalls closely conforming to the sidewalls of the longitudinal slots of the guiderails and opposing flat sidewalls conforming to the abutment faces of the rail connector; and

a pair of opposing deformation-resistant pieces bent perpendicular to upper and lower edges of the slot holder piece to closely conform to the upper and lower sidewalls of the rail connector to prevent deformation of the guiderails and enlargement of the slots upon a collision of a vehicle with the traffic barrier system,

wherein the holder unit is coupled in the rail connector such that a fastening member extends through a hole in the slot holder piece and fastens the neighboring guiderails to the post.

2. The traffic barrier structure according to claim **1**, wherein the rail connector has through-holes; and further comprising:

a plurality of connection holes formed in the connection parts of the two neighboring guiderails; and

a plurality of connection members fitted through the connection holes and the through-holes.

3. The traffic barrier structure according to claim **1**, wherein the guiderail units are installed on both sides of the posts, and further comprising a support unit,

wherein the fastening member fastens the guiderails and the rail holder to the post through the support unit.

4. The traffic barrier structure according to claim **3**, wherein the support unit comprises:

a support body part closely abutted on the post; and

support plates bent from opposing sides of the support body part,

wherein the fastening member fastens the guiderails and the rail holder to the post through the support plates.

5. The traffic barrier structure according to claim **4**, wherein the support body part further extends to a certain distance so that the guiderails are installed in a manner spaced away a distance from the post, so as to further absorb shock by the certain distance.

6. The traffic barrier structure according to claim **1**, further comprising a reinforcing section provided between the post and the guiderails to increase a contact area and thus fastening strength with respect to the guiderails.

7. The traffic barrier structure according to claim **6**, wherein the reinforcing section comprises:

a reinforcing plate part to be closely abutted against an inner side of the guiderails and having a through-hole; and

bent pieces bent from opposing ends of the reinforcing plate part towards the post so as to be closely abutted against an outer surface of the post.

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